

SEQUENCE LISTING

<110> CHAO, Moses V.
KONG, Haeyoung

<120> A TRANSMEMBRANE PROTEIN AS A DOWNSTREAM TARGET OF NEUROTROPHIN AND
EPHRIN RECEPTOR TYROSINE KINASES, DNA ENCODING SAME AND MONOCLONAL
ANTIBODIES THERETO

<130> CHAO11A

<140> NOT YET ASSIGNED

<141> 2001-12-19

<150> 60/256,909

<151> 2000-12-21

<160> 8

<170> PatentIn version 3.1

<210> 1

<211> 5148

<212> DNA

<213> Rattus norvegicus

<220>

<221> CDS

<222> (1)..(5148)

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Asn Ile Pro Ala Leu Lys Ala Leu Leu Glu Lys Cys Lys Asp Val Asp	
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gag agg aac gag tgt ggc cag acg ccg ctg atg ctg gct gcg gag cag	144
Glu Arg Asn Glu Cys Gly Gln Thr Pro Leu Met Leu Ala Ala Glu Gln	
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ggc aat gtg gaa ata gtg aaa gaa ctg tta aag aat gga gcc aac tgc	192
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Asn Leu Glu Asp Leu Asp Asn Trp Thr Ala Leu Ile Ser Ala Ser Lys	
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85 90 95	

ctg gag cac cga gac atg ggt gga tgg aca gct ctc atg tgg gcg tgc	336
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aac	cca	agt	gtc	act	ggg	ttg	cag	tat	agt	gtc	tac	cca	atc	atc	tgg	432	
Asn	Pro	Ser	Val	Thr	Gly	Leu	Gln	Tyr	Ser	Val	Tyr	Pro	Ile	Ile	Trp		
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Ala	Ala	Gly	Arg	Gly	His	Ala	Asp	Ile	Val	His	Leu	Leu	Leu	Gln	Asn		
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Thr	Ala	Leu	Tyr	Trp	Ala	Val	Glu	Lys	Gly	Asn	Ala	Thr	Met	Val	Arg		
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Pro Asn Lys Ala Gly Glu Thr Pro Tyr Asn Ile Asp Cys Ser His Gln	
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Glu Thr Asp Gly Asp Met Leu Gly Tyr Asp Leu Tyr Ser Ser Ala Leu	
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Leu Tyr Ala Gln Trp Gly Ser Gly Lys Ser Phe Leu Leu Lys Lys Leu	
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Gln Phe Ser Trp Leu Ile Val Phe Leu Thr Leu Leu Leu Cys Gly Gly	
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Ile Ser Leu Ser Phe Leu Ala Leu Ile Tyr Ile Phe Phe Ile Val Ile	
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Tyr Phe Gly Gly Arg Arg Glu Gly Glu Ser Trp Asn Trp Ala Trp Ala	
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Val Gly Gly Glu Thr Ser Leu Ala Glu Met Ile Ala Thr Leu Ser Asp	610 615 620	
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Ala Cys Glu Arg Glu Phe Gly Phe Leu Ala Thr Arg Leu Phe Arg Val	625 630 635 640	
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Phe Arg Thr Glu Glu Ser Gln Gly Lys Lys Lys Trp Lys Lys Thr Cys	645 650 655	
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Cys Leu Pro Ser Phe Val Ile Phe Leu Phe Ile Val Gly Cys Ile Ile	660 665 670	
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Phe Val Leu Asn Cys Arg Thr Trp Trp Gln Val Leu Asp Ser Leu Leu	705 710 715 720	
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Leu Lys Ser Glu Gly Phe Met Lys Val Leu Lys Cys Glu Val Glu Leu	740 745 750	
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Met Ala Arg Met Ala Lys Thr Ile Asp Ser Phe Thr Gln Asn Gln Thr	755 760 765	
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Arg Leu Val Val Ile Ile Asp Gly Leu Asp Ala Cys Glu Gln Asp Lys	770 775 780	
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Pro	Leu	His	Glu	Gly	Pro	Pro	Arg	Pro	Pro	Ser	Gly	Tyr	Ser	Gln	
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Pro	Ala	Ser	Val	Cys	Ser	Ser	Ala	Ser	Phe	Asn	Gly	Pro	Phe	Pro	
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Glu	Met	Arg	Ser	Val	Glu	Ser	Gln	Val	Val	Pro	Glu	Asp	Pro	Arg	
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Phe	Leu	Asn	Glu	Asn	Ser	Ser	Ala	Pro	Val	Pro	His	Gly	Glu	Ser	
1235						1240					1245				

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Ser Gln Thr Pro Tyr Thr Leu Asn Phe Ser Phe Glu Glu Leu Asn	
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Thr Leu Gly Leu Asp Glu Gly Ala Pro Arg His Ser Asn Leu Ser	
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Arg Ala Asn Gln Asn Phe Asp Glu Ile Glu Gly Ile Arg Glu Thr	
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Ser Gln Val Ile Leu Arg Pro Gly Pro Ser Pro Asn Pro Thr Ala	
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Val Gln Asn Glu Asn Leu Lys Ser Met Ala His Lys Arg Ser Gln	
1670 1675 1680	

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Ile Val Ala Val Lys Gly Gly Tyr Thr Gln Ser Val Lys Glu Ile Leu			
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Lys Arg Asn Pro Asn Val Asn Leu Thr Asp Lys Asp Gly Asn Thr Ala			
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Asp Ile Leu Gln Cys Asn Pro Asp Thr Glu Ile Cys Thr Lys Asp Gly			
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Glu Thr Pro Leu Ile Lys Ala Thr Lys Met Arg Asn Ile Glu Val Val			
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Glu Leu Leu Leu Asp Lys Gly Ala Lys Val Ser Ala Val Asp Lys Lys			
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Gly Asp Thr Pro Leu His Val Ala Ile Arg Gly Arg Ser Arg Arg Leu			
	370	375	380

Ala Glu Leu Leu Leu Arg Asn Pro Lys Asp Gly Arg Leu Leu Tyr Arg
385 390 395 400

Pro Asn Lys Ala Gly Glu Thr Pro Tyr Asn Ile Asp Cys Ser His Gln
405 410 415

Lys Ser Ile Leu Thr Gln Ile Phe Gly Ala Arg His Leu Ser Pro Thr
420 425 430

Glu Thr Asp Gly Asp Met Leu Gly Tyr Asp Leu Tyr Ser Ser Ala Leu
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Ala Asp Ile Leu Ser Glu Pro Thr Met Gln Pro Pro Ile Cys Val Gly
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Leu Tyr Ala Gln Trp Gly Ser Gly Lys Ser Phe Leu Leu Lys Lys Leu
465 470 475 480

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485 490 495

Gln Phe Ser Trp Leu Ile Val Phe Leu Thr Leu Leu Leu Cys Gly Gly
500 505 510

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515 520 525

Ile Ser Leu Ser Phe Leu Ala Leu Ile Tyr Ile Phe Phe Ile Val Ile
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580 585 590

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Gly Leu Ser Asn Ala Arg Lys Phe Leu Val Thr Ser Ala Thr Asn Gly
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Asp Ile Thr Cys Ser Asp Thr Thr Gly Thr Gln Glu Asp Thr Asp Arg
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Arg Val Ser Gln Asn Ser Leu Gly Glu Met Thr Lys Leu Gly Ser Lys
 885 890 895

Thr Ala Leu Asn Arg Arg Asp Thr Tyr Arg Arg Arg Gln Met Gln Arg
 900 905 910

Thr Ile Thr Arg Gln Met Ser Phe Asp Leu Thr Lys Leu Leu Val Thr
 915 920 925

Glu Asp Trp Phe Ser Asp Ile Ser Pro Gln Thr Met Arg Arg Leu Leu
 930 935 940

Asn Ile Val Ser Val Thr Gly Arg Leu Leu Arg Ala Asn Gln Ile Thr
 945 950 955 960

Phe Asn Trp Asp Arg Leu Ala Ser Trp Ile Asn Leu Thr Glu Gln Trp
 965 970 975

Pro Tyr Arg Thr Ser Trp Leu Ile Leu Tyr Leu Glu Glu Thr Glu Gly
 980 985 990

Leu Pro Asp Gln Met Thr Leu Lys Thr Met Tyr Glu Arg Ile Ser Lys
 995 1000 1005

Asn Ile Pro Thr Thr Lys Asp Val Glu Pro Leu Leu Glu Ile Asp
 1010 1015 1020

Gly Asp Ile Arg Asn Phe Glu Val Phe Leu Ser Ser Arg Thr Pro
 1025 1030 1035

Val Leu Val Ala Arg Asp Val Lys Thr Phe Leu Pro Cys Thr Val
 1040 1045 1050

Asn Leu Asp Pro Lys Leu Arg Glu Ile Ile Ala Asp Val Arg Ala
 1055 1060 1065

Ala Arg Glu Gln Ile Asn Ile Gly Gly Leu Ala Tyr Pro Pro Leu

1070		1075		1080
Pro Leu His Glu Gly Pro Pro Arg Pro Pro Ser Gly Tyr Ser Gln				
1085		1090		1095
Pro Ala Ser Val Cys Ser Ser Ala Ser Phe Asn Gly Pro Phe Pro				
1100		1105		1110
Gly Gly Val Val Ser Pro Gln Pro His Ser Ser Tyr Tyr Ser Gly				
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Leu Ser Gly Pro Gln His Pro Phe Tyr Asn Arg Ala Ala Val Pro				
1130		1135		1140
Ala Thr Gly Ser Ser Leu Leu Leu Ser Ser Met Thr Val Asp Val				
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Val Cys Glu Lys Leu Arg Gln Ile Glu Gly Leu Asp Gln Asn Met				
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Met Pro Gln Tyr Cys Thr Thr Ile Lys Lys Ala Asn Ile Asn Gly				
1175		1180		1185
Arg Val Leu Ser Gln Cys Asn Ile Asp Glu Leu Lys Lys Glu Met				
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Ala Met Asn Phe Gly Asp Trp His Leu Phe Arg Ser Met Val Leu				
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Glu Met Arg Ser Val Glu Ser Gln Val Val Pro Glu Asp Pro Arg				
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Phe Leu Asn Glu Asn Ser Ser Ala Pro Val Pro His Gly Glu Ser				
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Ala Arg Arg Ser Ser His Thr Glu Leu Pro Leu Thr Glu Leu Ser				
1250		1255		1260
Ser Gln Thr Pro Tyr Thr Leu Asn Phe Ser Phe Glu Glu Leu Asn				
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Thr Leu Gly Leu Asp Glu Gly Ala Pro Arg His Ser Asn Leu Ser				
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Trp	Gln	Ser	Gln	Thr	Arg	Arg	Thr	Pro	Ser	Leu	Ser	Ser	Leu	Asn
1295						1300					1305			
Ser	Gln	Asp	Ser	Ser	Ile	Glu	Ile	Ser	Lys	Leu	Thr	Asp	Lys	Val
1310						1315					1320			
Gln	Ala	Glu	Tyr	Arg	Asp	Ala	Tyr	Arg	Glu	Tyr	Ile	Ala	Gln	Met
1325						1330					1335			
Ser	Gln	Leu	Glu	Gly	Gly	Thr	Gly	Ser	Ser	Thr	Ile	Ser	Gly	Arg
1340						1345					1350			
Ser	Ser	Pro	His	Ser	Thr	Tyr	Tyr	Ile	Gly	Gln	Ser	Ser	Ser	Gly
1355						1360					1365			
Gly	Ser	Ile	His	Ser	Thr	Leu	Glu	Gln	Glu	Arg	Gly	Lys	Glu	Gly
1370						1375					1380			
Glu	Leu	Lys	Gln	Glu	Asp	Gly	Arg	Lys	Ser	Phe	Leu	Met	Lys	Arg
1385						1390					1395			
Gly	Asp	Val	Ile	Asp	Tyr	Ser	Ser	Ser	Gly	Val	Ser	Thr	Asn	Glu
1400						1405					1410			
Ala	Ser	Pro	Leu	Asp	Pro	Ile	Thr	Glu	Glu	Asp	Glu	Lys	Ser	Asp
1415						1420					1425			
Gln	Ser	Gly	Ser	Lys	Leu	Leu	Pro	Gly	Lys	Lys	Ser	Ser	Glu	Arg
1430						1435					1440			
Pro	Ser	Leu	Phe	Gln	Thr	Asp	Leu	Lys	Leu	Lys	Gly	Gly	Gly	Leu
1445						1450					1455			
Arg	Tyr	Gln	Lys	Leu	Pro	Ser	Asp	Glu	Asp	Glu	Ser	Gly	Thr	Gly
1460						1465					1470			
Arg	Val	Gln	Ile	Thr	Pro	His	Cys	Ser	Lys	Met	Ile	Arg	Thr	Lys
1475						1480					1485			
Arg	Leu	Lys	Ala	Lys	Gln	Arg	Glu	Cys	Ala	Ser	Pro	Gln	Glu	His
1490						1495					1500			
Ser	Ala	Glu	Pro	Ile	Arg	Thr	Phe	Ile	Lys	Ala	Lys	Glu	Tyr	Leu

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Ser Asp Ala Leu Leu Asp Lys Lys Asp Ser Ser Asp Ser Gly Val				
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Ala Asp Asp Ser Gln Leu Glu Lys Ala Asn Leu Ile Glu Leu Glu				
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Asp Glu Gly His Ser Gly Lys Arg Gly Met Pro His Ser Leu Ser				
1565		1570		1575
Gly Leu Gln Asp Pro Ile Ile Ala Arg Met Ser Ile Cys Ser Glu				
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Asp Lys Lys Ser Pro Ser Glu Cys Ser Leu Ile Ala Ser Ser Pro				
1595		1600		1605
Glu Glu Ser Trp Pro Ala Cys Gln Lys Ala Tyr Asn Leu Asn Arg				
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Thr Pro Ser Thr Val Thr Leu Asn Asn Asn Thr Ala Pro Thr Asn				
1625		1630		1635
Arg Ala Asn Gln Asn Phe Asp Glu Ile Glu Gly Ile Arg Glu Thr				
1640		1645		1650
Ser Gln Val Ile Leu Arg Pro Gly Pro Ser Pro Asn Pro Thr Ala				
1655		1660		1665
Val Gln Asn Glu Asn Leu Lys Ser Met Ala His Lys Arg Ser Gln				
1670		1675		1680
Arg Ser Ser Tyr Thr Arg Leu Ser Lys Asp Ala Ser Glu Leu His				
1685		1690		1695
Ala Ala Ser Ser Glu Ser Thr Gly Phe Gly Glu Glu Arg Glu Ser				
1700		1705		1710
Ile Leu				
1715				

DATE	DESCRIPTION	AMOUNT	BALANCE
1971-01-01	OPENING BALANCE	100.00	100.00
1971-01-15	PAYROLL	50.00	50.00
1971-02-01	RECEIVED	25.00	75.00
1971-02-15	PAYROLL	50.00	25.00
1971-03-01	RECEIVED	25.00	0.00
1971-03-15	PAYROLL	50.00	50.00
1971-04-01	RECEIVED	25.00	75.00
1971-04-15	PAYROLL	50.00	25.00
1971-05-01	RECEIVED	25.00	0.00
1971-05-15	PAYROLL	50.00	50.00
1971-06-01	RECEIVED	25.00	75.00
1971-06-15	PAYROLL	50.00	25.00
1971-07-01	RECEIVED	25.00	0.00
1971-07-15	PAYROLL	50.00	50.00
1971-08-01	RECEIVED	25.00	75.00
1971-08-15	PAYROLL	50.00	25.00
1971-09-01	RECEIVED	25.00	0.00
1971-09-15	PAYROLL	50.00	50.00
1971-10-01	RECEIVED	25.00	75.00
1971-10-15	PAYROLL	50.00	25.00
1971-11-01	RECEIVED	25.00	0.00
1971-11-15	PAYROLL	50.00	50.00
1971-12-01	RECEIVED	25.00	75.00
1971-12-15	PAYROLL	50.00	25.00
1972-01-01	RECEIVED	25.00	0.00
1972-01-15	PAYROLL	50.00	50.00
1972-02-01	RECEIVED	25.00	75.00
1972-02-15	PAYROLL	50.00	25.00
1972-03-01	RECEIVED	25.00	0.00
1972-03-15	PAYROLL	50.00	50.00
1972-04-01	RECEIVED	25.00	75.00
1972-04-15	PAYROLL	50.00	25.00
1972-05-01	RECEIVED	25.00	0.00
1972-05-15	PAYROLL	50.00	50.00
1972-06-01	RECEIVED	25.00	75.00
1972-06-15	PAYROLL	50.00	25.00
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1972-07-15	PAYROLL	50.00	50.00
1972-08-01	RECEIVED	25.00	75.00
1972-08-15	PAYROLL	50.00	25.00
1972-09-01	RECEIVED	25.00	0.00
1972-09-15	PAYROLL	50.00	50.00
1972-10-01	RECEIVED	25.00	75.00
1972-10-15	PAYROLL	50.00	25.00
1972-11-01	RECEIVED	25.00	0.00
1972-11-15	PAYROLL	50.00	50.00
1972-12-01	RECEIVED	25.00	75.00
1972-12-15	PAYROLL	50.00	25.00
1973-01-01	RECEIVED	25.00	0.00
1973-01-15	PAYROLL	50.00	50.00
1973-02-01	RECEIVED	25.00	75.00
1973-02-15	PAYROLL	50.00	25.00
1973-03-01	RECEIVED	25.00	0.00
1973-03-15	PAYROLL	50.00	50.00
1973-04-01	RECEIVED	25.00	75.00
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1973-05-01	RECEIVED	25.00	0.00
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1973-07-01	RECEIVED	25.00	0.00
1973-07-15	PAYROLL	50.00	50.00
1973-08-01	RECEIVED	25.00	75.00
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1973-09-01	RECEIVED	25.00	0.00
1973-09-15	PAYROLL	50.00	50.00
1973-10-01	RECEIVED	25.00	75.00
1973-10-15	PAYROLL	50.00	25.00
1973-11-01	RECEIVED	25.00	0.00
1973-11-15	PAYROLL	50.00	50.00
1973-12-01	RECEIVED	25.00	75.00
1973-12-15	PAYROLL	50.00	25.00
1974-01-01	RECEIVED	25.00	0.00
1974-01-15	PAYROLL	50.00	50.00
1974-02-01	RECEIVED	25.00	75.00
1974-02-15	PAYROLL	50.00	25.00

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tccccgtcct	ctgacatcgc	ctgcagccga	gcgggcccgt	tccgccggag	ctgaggacca											120	
ggtattcaaa	taaagttaat	tgcagctttc	tgtgaaa	atg	tca	ggt	ttg	ata	tca							175	
				Met	Ser	Val	Leu	Ile	Ser								
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cag	agc	gtc	ata	aat	tat	gta	gag	gaa	gaa	aac	att	cct	gct	ctg	aaa	223	
Gln	Ser	Val	Ile	Asn	Tyr	Val	Glu	Glu	Glu	Asn	Ile	Pro	Ala	Leu	Lys		
			10				15				20						
gct	ctt	ctt	gaa	aaa	tgc	aaa	gat	gta	gat	gag	aga	aat	gag	tgt	ggc	271	
Ala	Leu	Leu	Glu	Lys	Cys	Lys	Asp	Val	Asp	Glu	Arg	Asn	Glu	Cys	Gly		
		25			30			35									
cag	act	cca	ctg	atg	ata	gct	gcc	gaa	caa	ggc	aat	ctg	gaa	ata	gtg	319	
Gln	Thr	Pro	Leu	Met	Ile	Ala	Ala	Glu	Gln	Gly	Asn	Leu	Glu	Ile	Val		
		40				45				50							
aag	gaa	tta	att	aag	aat	gga	gct	aac	tgc	aat	ctg	gaa	gat	ttg	gat	367	
Lys	Glu	Leu	Ile	Lys	Asn	Gly	Ala	Asn	Cys	Asn	Leu	Glu	Asp	Leu	Asp		
55					60					65				70			
aat	tgg	aca	gca	ctt	ata	tct	gca	tcg	aaa	gaa	ggg	cat	gtg	cac	atc	415	
Asn	Trp	Thr	Ala	Leu	Ile	Ser	Ala	Ser	Lys	Glu	Gly	His	Val	His	Ile		
				75					80				85				
gta	gag	gaa	cta	ctg	aaa	tgt	ggg	gtt	aac	ttg	gag	cac	cgt	gat	atg	463	
Val	Glu	Glu	Leu	Leu	Lys	Cys	Gly	Val	Asn	Leu	Glu	His	Arg	Asp	Met		
			90				95				100						
gga	gga	tgg	aca	gct	ctt	atg	tgg	gca	tgt	tac	aaa	ggc	cgt	act	gac	511	
Gly	Gly	Trp	Thr	Ala	Leu	Met	Trp	Ala	Cys	Tyr	Lys	Gly	Arg	Thr	Asp		
		105				110				115							
gta	gta	gag	ttg	ctt	ctt	tct	cat	ggt	gcc	aat	cca	agt	gtc	act	ggt	559	
Val	Val	Glu	Leu	Leu	Leu	Ser	His	Gly	Ala	Asn	Pro	Ser	Val	Thr	Gly		
		120				125				130							
ctg	cag	tac	agt	gtt	tac	cca	atc	att	tgg	gca	gca	ggg	aga	ggc	cat	607	
Leu	Gln	Tyr	Ser	Val	Tyr	Pro	Ile	Ile	Trp	Ala	Ala	Gly	Arg	Gly	His		
135					140				145				150				
qca	qat	ata	qtt	cat	ctt	tta	ctg	caa	aat	ggt	gct	aaa	gtc	aac	tgc	655	

aat ccc aaa gat ggg cga tta ctt tat agg ccc aac aaa gca ggc gag	1375
Asn Pro Lys Asp Gly Arg Leu Leu Tyr Arg Pro Asn Lys Ala Gly Glu	
395 400 405	
act cct tat aat att gac tgt agc cat cag aag agt att tta act caa	1423
Thr Pro Tyr Asn Ile Asp Cys Ser His Gln Lys Ser Ile Leu Thr Gln	
410 415 420	
ata ttt gga gcc aga cac ttg tct cct act gaa aca gac ggt gac atg	1471
Ile Phe Gly Ala Arg His Leu Ser Pro Thr Glu Thr Asp Gly Asp Met	
425 430 435	
ctt gga tat gat tta tat agc agt gcc ctg gca gat att ctc agt gag	1519
Leu Gly Tyr Asp Leu Tyr Ser Ser Ala Leu Ala Asp Ile Leu Ser Glu	
440 445 450	
cct acc atg cag cca ccc att tgt gtg ggg tta tat gca cag tgg gga	1567
Pro Thr Met Gln Pro Pro Ile Cys Val Gly Leu Tyr Ala Gln Trp Gly	
455 460 465 470	
agt ggg aaa tct ttc tta ctc aag aaa cta gaa gac gaa atg aaa acc	1615
Ser Gly Lys Ser Phe Leu Leu Lys Lys Leu Glu Asp Glu Met Lys Thr	
475 480 485	
ttc gcc gga caa cag att gag cct ctc ttt cag ttc tca tgg ctc ata	1663
Phe Ala Gly Gln Gln Ile Glu Pro Leu Phe Gln Phe Ser Trp Leu Ile	
490 495 500	
gtg ttt ctt acc ctg cta ctt tgt gga ggg ctt ggt tta ttg ttt gcc	1711
Val Phe Leu Thr Leu Leu Leu Cys Gly Gly Leu Gly Leu Leu Phe Ala	
505 510 515	
ttc acg gtc cac cca aat ctt gga ata gca gtg tca ctg agc ttc ttg	1759
Phe Thr Val His Pro Asn Leu Gly Ile Ala Val Ser Leu Ser Phe Leu	
520 525 530	
gct ctc tta tat ata ttc ttt att gtc att tac ttt ggt gga cga aga	1807
Ala Leu Leu Tyr Ile Phe Phe Ile Val Ile Tyr Phe Gly Gly Arg Arg	
535 540 545 550	
gaa gga gag agt tgg aat tgg gcc tgg gtc ctc agc act aga ttg gca	1855
Glu Gly Glu Ser Trp Asn Trp Ala Trp Val Leu Ser Thr Arg Leu Ala	
555 560 565	
aga cat att gga tat ttg gaa ctc ctc ctt aaa ttg atg ttt gtg aat	1903
Arg His Ile Gly Tyr Leu Glu Leu Leu Leu Lys Leu Met Phe Val Asn	
570 575 580	
cca cct gag ttg cca gag cag act act aaa gct tta cct gtg agg ttt	1951
Pro Pro Glu Leu Pro Glu Gln Thr Thr Lys Ala Leu Pro Val Arg Phe	
585 590 595	
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Leu Phe Thr Asp Tyr Asn Arg Leu Ser Ser Val Gly Gly Glu Thr Ser	
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ctg gct gaa atg att gca acc ctc tcg gat gct tgt gaa aga gag ttt	2047

Leu	Ala	Glu	Met	Ile	Ala	Thr	Leu	Ser	Asp	Ala	Cys	Glu	Arg	Glu	Phe		
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Gly	Phe	Leu	Ala	Thr	Arg	Leu	Phe	Arg	Val	Phe	Lys	Thr	Glu	Asp	Thr		
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Gln	Gly	Lys	Lys	Lys	Trp	Lys	Lys	Thr	Cys	Cys	Leu	Pro	Ser	Phe	Val		
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atc	ttc	ctt	ttt	atc	att	ggc	tgc	att	ata	tct	gga	att	act	ctt	ctg	2191	
Ile	Phe	Leu	Phe	Ile	Ile	Gly	Cys	Ile	Ile	Ser	Gly	Ile	Thr	Leu	Leu		
		665					670					675					
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Ala	Ile	Phe	Arg	Val	Asp	Pro	Lys	His	Leu	Thr	Val	Asn	Ala	Val	Leu		
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Met	Lys	Val	Leu	Lys	Cys	Glu	Val	Glu	Leu	Met	Ala	Arg	Met	Ala	Lys		
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His	Pro	Phe	Tyr	Asn	Arg	Gly	Ser	Gly	Pro	Ala	Pro	Gly	Pro	Val			
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Asp	Trp	His	Leu	Phe	Arg	Ser	Thr	Val	Leu	Glu	Met	Arg	Asn	Ala			
1210						1215					1220						
gaa	agc	cac	gtg	gtc	cct	gaa	gac	cca	cgt	ttc	ctc	agt	gag	agc		3871	
Glu	Ser	His	Val	Val	Pro	Glu	Asp	Pro	Arg	Phe	Leu	Ser	Glu	Ser			
1225						1230					1235						
agc	agt	ggc	cca	gcc	ccg	cac	ggg	gag	cct	gct	cgc	cgc	gct	tcc		3916	
Ser	Ser	Gly	Pro	Ala	Pro	His	Gly	Glu	Pro	Ala	Arg	Arg	Ala	Ser			
1240						1245					1250						
cac	aac	gag	ctg	cct	cac	acc	gag	ctc	tcc	agc	cag	acg	ccc	tac		3961	
His	Asn	Glu	Leu	Pro	His	Thr	Glu	Leu	Ser	Ser	Gln	Thr	Pro	Tyr			
1255						1260					1265						
aca	ctc	aac	ttc	agc	ttc	gaa	gag	ctg	aac	acg	ctt	ggc	ctg	gat		4006	
Thr	Leu	Asn	Phe	Ser	Phe	Glu	Glu	Leu	Asn	Thr	Leu	Gly	Leu	Asp			
1270						1275					1280						
gaa	ggg	gcc	cct	cgt	cac	agt	aat	cta	agt	tgg	cag	tca	caa	act		4051	
Glu	Gly	Ala	Pro	Arg	His	Ser	Asn	Leu	Ser	Trp	Gln	Ser	Gln	Thr			
1285						1290					1295						

cgc aga acc cca agt ctt tcg	agt ctc aat tcc cag	gat tcc agt	4096
Arg Arg Thr Pro Ser Leu Ser	Ser Leu Asn Ser Gln	Asp Ser Ser	
1300	1305	1310	
att gaa att tca aag ctt act	gat aag gtg cag gcc	gag tat aga	4141
Ile Glu Ile Ser Lys Leu Thr	Asp Lys Val Gln Ala	Glu Tyr Arg	
1315	1320	1325	
gat gcc tat aga gaa tac att	gct cag atg tcc cag	tta gaa ggg	4186
Asp Ala Tyr Arg Glu Tyr Ile	Ala Gln Met Ser Gln	Leu Glu Gly	
1330	1335	1340	
ggc ccc ggg tct aca acc att	agt ggc aga tct tct	cca cat agc	4231
Gly Pro Gly Ser Thr Thr Ile	Ser Gly Arg Ser Ser	Pro His Ser	
1345	1350	1355	
aca tat tac atg ggt cag agt	tca tca ggg ggc tct	att cat tca	4276
Thr Tyr Tyr Met Gly Gln Ser	Ser Ser Gly Gly Ser	Ile His Ser	
1360	1365	1370	
aac cta gag caa gaa aag ggg	aag gat agt gaa cca	aag ccc gat	4321
Asn Leu Glu Gln Glu Lys Gly	Lys Asp Ser Glu Pro	Lys Pro Asp	
1375	1380	1385	
gat ggg agg aag tcc ttt cta	atg aag agg gga gat	gtt atc gat	4366
Asp Gly Arg Lys Ser Phe Leu	Met Lys Arg Gly Asp	Val Ile Asp	
1390	1395	1400	
tat tca tca tca ggg gtt tcc	acc aac gat gct tcc	ccc ctg gat	4411
Tyr Ser Ser Ser Gly Val Ser	Thr Asn Asp Ala Ser	Pro Leu Asp	
1405	1410	1415	
cct atc act gaa gaa gat gaa	aaa tca gat cag tca	ggc agt aag	4456
Pro Ile Thr Glu Glu Asp Glu	Lys Ser Asp Gln Ser	Gly Ser Lys	
1420	1425	1430	
ctt ctc cca ggc aag aaa tct	tcc gaa agg tca agc	ctc ttc cag	4501
Leu Leu Pro Gly Lys Lys Ser	Ser Glu Arg Ser Ser	Leu Phe Gln	
1435	1440	1445	
aca gat ttg aag ctt aag gga	agt ggg ctg cgc tat	caa aaa ctc	4546
Thr Asp Leu Lys Leu Lys Gly	Ser Gly Leu Arg Tyr	Gln Lys Leu	
1450	1455	1460	
cca agt gac gag gat gaa tct	ggc aca gaa gaa tca	gat aac act	4591
Pro Ser Asp Glu Asp Glu Ser	Gly Thr Glu Glu Ser	Asp Asn Thr	
1465	1470	1475	
cca ctg ctc aaa gat gac aaa	gac aga aaa gcc gaa	ggg aaa gta	4636
Pro Leu Leu Lys Asp Asp Lys	Asp Arg Lys Ala Glu	Gly Lys Val	
1480	1485	1490	
gag aga gtg ccg aag tct cca	gaa cac agt gct gag	ccg atc aga	4681
Glu Arg Val Pro Lys Ser Pro	Glu His Ser Ala Glu	Pro Ile Arg	
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<213> Homo sapiens

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Glu Arg Asn Glu Cys Gly Gln Thr Pro Leu Met Ile Ala Ala Glu Gln
35 40 45

Gly Asn Leu Glu Ile Val Lys Glu Leu Ile Lys Asn Gly Ala Asn Cys
50 55 60

Asn Leu Glu Asp Leu Asp Asn Trp Thr Ala Leu Ile Ser Ala Ser Lys
65 70 75 80

Glu Gly His Val His Ile Val Glu Glu Leu Leu Lys Cys Gly Val Asn
85 90 95

Leu Glu His Arg Asp Met Gly Gly Trp Thr Ala Leu Met Trp Ala Cys
100 105 110

Tyr Lys Gly Arg Thr Asp Val Val Glu Leu Leu Leu Ser His Gly Ala
115 120 125

Asn Pro Ser Val Thr Gly Leu Gln Tyr Ser Val Tyr Pro Ile Ile Trp
130 135 140

Ala Ala Gly Arg Gly His Ala Asp Ile Val His Leu Leu Leu Gln Asn
145 150 155 160

Gly Ala Lys Val Asn Cys Ser Asp Lys Tyr Gly Thr Thr Pro Leu Val
165 170 175

Trp Ala Ala Arg Lys Gly His Leu Glu Cys Val Lys His Leu Leu Ala
180 185 190

Met Gly Ala Asp Val Asp Gln Glu Gly Ala Asn Ser Met Thr Ala Leu
195 200 205

Ile Val Ala Val Lys Gly Gly Tyr Thr Gln Ser Val Lys Glu Ile Leu

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Lys Arg Asn Pro Asn Val Asn Leu Thr Asp Lys Asp Gly Asn Thr Ala		
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Leu Met Ile Ala Ser Lys Glu Gly His Thr Glu Ile Val Gln Asp Leu		
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Leu Asp Ala Gly Thr Tyr Val Asn Ile Pro Asp Arg Ser Gly Asp Thr		
	260	265 270
Val Leu Ile Gly Ala Val Arg Gly Gly His Val Glu Ile Val Arg Ala		
	275	280 285
Leu Leu Gln Lys Tyr Ala Asp Ile Asp Ile Arg Gly Gln Asp Asn Lys		
	290	295 300
Thr Ala Leu Tyr Trp Ala Val Glu Lys Gly Asn Ala Thr Met Val Arg		
	310	315 320
Asp Ile Leu Gln Cys Asn Pro Asp Thr Glu Ile Cys Thr Lys Asp Gly		
	325	330 335
Glu Thr Pro Leu Ile Lys Ala Thr Lys Met Arg Asn Ile Glu Val Val		
	340	345 350
Glu Leu Leu Leu Asp Lys Gly Ala Lys Val Ser Ala Val Asp Lys Lys		
	355	360 365
Gly Asp Thr Pro Leu His Ile Ala Ile Arg Gly Arg Ser Arg Lys Leu		
	370	375 380
Ala Glu Leu Leu Leu Arg Asn Pro Lys Asp Gly Arg Leu Leu Tyr Arg		
	385	390 395 400
Pro Asn Lys Ala Gly Glu Thr Pro Tyr Asn Ile Asp Cys Ser His Gln		
	405	410 415
Lys Ser Ile Leu Thr Gln Ile Phe Gly Ala Arg His Leu Ser Pro Thr		
	420	425 430
Glu Thr Asp Gly Asp Met Leu Gly Tyr Asp Leu Tyr Ser Ser Ala Leu		
	435	440 445

Ala Asp Ile Leu Ser Glu Pro Thr Met Gln Pro Pro Ile Cys Val Gly
450 455 460

Leu Tyr Ala Gln Trp Gly Ser Gly Lys Ser Phe Leu Leu Lys Lys Leu
465 470 475 480

Glu Asp Glu Met Lys Thr Phe Ala Gly Gln Gln Ile Glu Pro Leu Phe
485 490 495

Gln Phe Ser Trp Leu Ile Val Phe Leu Thr Leu Leu Leu Cys Gly Gly
500 505 510

Leu Gly Leu Leu Phe Ala Phe Thr Val His Pro Asn Leu Gly Ile Ala
515 520 525

Val Ser Leu Ser Phe Leu Ala Leu Leu Tyr Ile Phe Phe Ile Val Ile
530 535 540

Tyr Phe Gly Gly Arg Arg Glu Gly Glu Ser Trp Asn Trp Ala Trp Val
545 550 555 560

Leu Ser Thr Arg Leu Ala Arg His Ile Gly Tyr Leu Glu Leu Leu Leu
565 570 575

Lys Leu Met Phe Val Asn Pro Pro Glu Leu Pro Glu Gln Thr Thr Lys
580 585 590

Ala Leu Pro Val Arg Phe Leu Phe Thr Asp Tyr Asn Arg Leu Ser Ser
595 600 605

Val Gly Gly Glu Thr Ser Leu Ala Glu Met Ile Ala Thr Leu Ser Asp
610 615 620

Ala Cys Glu Arg Glu Phe Gly Phe Leu Ala Thr Arg Leu Phe Arg Val
625 630 635 640

Phe Lys Thr Glu Asp Thr Gln Gly Lys Lys Lys Trp Lys Lys Thr Cys
645 650 655

Cys Leu Pro Ser Phe Val Ile Phe Leu Phe Ile Ile Gly Cys Ile Ile
660 665 670

Ser Gly Ile Thr Leu Leu Ala Ile Phe Arg Val Asp Pro Lys His Leu

675	680	685
Thr Val Asn Ala Val Leu Ile Ser Ile Ala Ser Val Val Gly Leu Ala 690 695 700		
Phe Val Leu Asn Cys Arg Thr Trp Trp Gln Val Leu Asp Ser Leu Leu 705 710 715 720		
Asn Ser Gln Arg Lys Arg Leu His Asn Ala Ala Ser Lys Leu His Lys 725 730 735		
Leu Lys Ser Glu Gly Phe Met Lys Val Leu Lys Cys Glu Val Glu Leu 740 745 750		
Met Ala Arg Met Ala Lys Thr Ile Asp Ser Phe Thr Gln Asn Gln Thr 755 760 765		
Arg Leu Val Val Ile Ile Asp Gly Leu Asp Ala Cys Glu Gln Asp Lys 770 775 780		
Val Leu Gln Met Leu Asp Thr Val Arg Val Leu Phe Ser Lys Gly Pro 785 790 795 800		
Phe Ile Ala Ile Phe Ala Ser Asp Pro His Ile Ile Ile Lys Ala Ile 805 810 815		
Asn Gln Asn Leu Asn Ser Val Leu Arg Asp Ser Asn Ile Asn Gly His 820 825 830		
Asp Tyr Met Arg Asn Ile Val His Leu Pro Val Phe Leu Asn Ser Arg 835 840 845		
Gly Leu Ser Asn Ala Arg Lys Phe Leu Val Thr Ser Ala Thr Asn Gly 850 855 860		
Asp Val Pro Cys Ser Asp Thr Thr Gly Ile Gln Glu Asp Ala Asp Arg 865 870 875 880		
Arg Val Ser Gln Asn Ser Leu Gly Glu Met Thr Lys Leu Gly Ser Lys 885 890 895		
Thr Ala Leu Asn Arg Arg Asp Thr Tyr Arg Arg Arg Gln Met Gln Arg 900 905 910		

Thr Ile Thr Arg Gln Met Ser Phe Asp Leu Thr Lys Leu Leu Val Thr
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Glu Asp Trp Phe Ser Asp Ile Ser Pro Gln Thr Met Arg Arg Leu Leu
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Asn Ile Val Ser Val Thr Gly Arg Leu Leu Arg Ala Asn Gln Ile Ser
 945 950 955 960

Phe Asn Trp Asp Arg Leu Ala Ser Trp Ile Asn Leu Thr Glu Gln Trp
 965 970 975

Pro Tyr Arg Thr Ser Trp Leu Ile Leu Tyr Leu Glu Glu Thr Glu Gly
 980 985 990

Ile Pro Asp Gln Met Thr Leu Lys Thr Ile Tyr Glu Arg Ile Ser Lys
 995 1000 1005

Asn Ile Pro Thr Thr Lys Asp Val Glu Pro Leu Leu Glu Ile Asp
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Gly Asp Ile Arg Asn Phe Glu Val Phe Leu Ser Ser Arg Thr Pro
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Val Leu Val Ala Arg Asp Val Lys Val Phe Leu Pro Cys Thr Val
 1040 1045 1050

Asn Leu Asp Pro Lys Leu Arg Glu Ile Ile Ala Asp Val Arg Ala
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Ala Arg Glu Gln Ile Ser Ile Gly Gly Leu Ala Tyr Pro Pro Leu
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Pro Leu His Glu Gly Pro Pro Arg Ala Pro Ser Gly Tyr Ser Gln
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Pro Pro Ser Val Cys Ser Ser Thr Ser Phe Asn Gly Pro Phe Ala
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Gly Gly Val Val Ser Pro Gln Pro His Ser Ser Tyr Tyr Ser Gly
 1115 1120 1125

Met Thr Gly Pro Gln His Pro Phe Tyr Asn Arg Gly Ser Gly Pro

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Ala Pro Gly Pro Val Val Leu	Leu Asn Ser Leu Asn	Val Asp Ala		
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Val Cys Glu Lys Leu Lys Gln	Ile Glu Gly Leu Asp	Gln Ser Met		
1160	1165	1170		
Leu Pro Gln Tyr Cys Thr Thr	Ile Lys Lys Ala Asn	Ile Asn Gly		
1175	1180	1185		
Arg Val Leu Ala Gln Cys Asn	Ile Asp Glu Leu Lys	Lys Glu Met		
1190	1195	1200		
Asn Met Asn Phe Gly Asp Trp	His Leu Phe Arg Ser	Thr Val Leu		
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Glu Met Arg Asn Ala Glu Ser	His Val Val Pro Glu	Asp Pro Arg		
1220	1225	1230		
Phe Leu Ser Glu Ser Ser Ser	Gly Pro Ala Pro His	Gly Glu Pro		
1235	1240	1245		
Ala Arg Arg Ala Ser His Asn	Glu Leu Pro His Thr	Glu Leu Ser		
1250	1255	1260		
Ser Gln Thr Pro Tyr Thr Leu	Asn Phe Ser Phe Glu	Glu Leu Asn		
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Thr Leu Gly Leu Asp Glu Gly	Ala Pro Arg His Ser	Asn Leu Ser		
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Ser Gln Asp Ser Ser Ile Glu	Ile Ser Lys Leu Thr	Asp Lys Val		
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Gln Ala Glu Tyr Arg Asp Ala	Tyr Arg Glu Tyr Ile	Ala Gln Met		
1325	1330	1335		
Ser Gln Leu Glu Gly Gly Pro	Gly Ser Thr Thr Ile	Ser Gly Arg		
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 Gly Ser Ile His Ser Asn Leu Glu Gln Glu Lys Gly Lys Asp Ser
 1370 1375 1380
 Glu Pro Lys Pro Asp Asp Gly Arg Lys Ser Phe Leu Met Lys Arg
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 Gly Asp Val Ile Asp Tyr Ser Ser Ser Gly Val Ser Thr Asn Asp
 1400 1405 1410
 Ala Ser Pro Leu Asp Pro Ile Thr Glu Glu Asp Glu Lys Ser Asp
 1415 1420 1425
 Gln Ser Gly Ser Lys Leu Leu Pro Gly Lys Lys Ser Ser Glu Arg
 1430 1435 1440
 Ser Ser Leu Phe Gln Thr Asp Leu Lys Leu Lys Gly Ser Gly Leu
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 Arg Tyr Gln Lys Leu Pro Ser Asp Glu Asp Glu Ser Gly Thr Glu
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 Glu Ser Asp Asn Thr Pro Leu Leu Lys Asp Asp Lys Asp Arg Lys
 1475 1480 1485
 Ala Glu Gly Lys Val Glu Arg Val Pro Lys Ser Pro Glu His Ser
 1490 1495 1500
 Ala Glu Pro Ile Arg Thr Phe Ile Lys Ala Lys Glu Tyr Leu Ser
 1505 1510 1515
 Asp Ala Leu Leu Asp Lys Lys Asp Ser Ser Asp Ser Gly Val Arg
 1520 1525 1530
 Ser Ser Glu Ser Ser Pro Asn His Ser Leu His Asn Glu Val Ala
 1535 1540 1545
 Asp Asp Ser Gln Leu Glu Lys Ala Asn Leu Ile Glu Leu Glu Asp
 1550 1555 1560
 Asp Ser His Ser Gly Lys Arg Gly Ile Pro His Ser Leu Ser Gly

1565		1570		1575
Leu Gln Asp Pro Ile Ile	Ala Arg Met Ser Ile Cys	Ser Glu Asp		
1580	1585	1590		
Lys Lys Ser Pro Ser Glu	Cys Ser Leu Ile Ala Ser	Ser Pro Glu		
1595	1600	1605		
Glu Asn Trp Pro Ala Cys	Gln Lys Ala Tyr Asn Leu	Asn Arg Thr		
1610	1615	1620		
Pro Ser Thr Val Thr Leu	Asn Asn Asn Ser Ala Pro	Ala Asn Arg		
1625	1630	1635		
Ala Asn Gln Asn Phe Asp	Glu Met Glu Gly Ile Arg	Glu Thr Ser		
1640	1645	1650		
Gln Val Ile Leu Arg Pro	Ser Ser Ser Pro Asn Pro	Thr Thr Ile		
1655	1660	1665		
Gln Asn Glu Asn Leu Lys	Ser Met Thr His Lys Arg	Ser Gln Arg		
1670	1675	1680		
Ser Ser Tyr Thr Arg Leu	Ser Lys Asp Pro Pro Glu	Leu His Ala		
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1715				

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48

Ile Cys Glu Ser Leu Ile Asn Ser Gly Ala Phe Val Asn Gln Cys Asp	
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Arg Phe Gly Asn Trp Ile Leu Thr Ser Ala Val Arg Ser Gly Asn Ala	
260 265 270	
gca att gtt aga atg att ctc gac aaa ttt gct gat atc aat tgt caa	864
Ala Ile Val Arg Met Ile Leu Asp Lys Phe Ala Asp Ile Asn Cys Gln	
275 280 285	
gac tct gaa aaa cgg aca cca ctt cat ctg gcc atc gat aaa tca ttc	912
Asp Ser Glu Lys Arg Thr Pro Leu His Leu Ala Ile Asp Lys Ser Phe	
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Asn Asp Ile Ala Tyr Ile Leu Leu Glu Lys Lys Pro Asn Leu Glu Leu	
305 310 315 320	
aaa aat aag gac ggt gaa act cca ctt ctt cgt gct gct aaa tgt cgt	1008
Lys Asn Lys Asp Gly Glu Thr Pro Leu Leu Arg Ala Ala Lys Cys Arg	
325 330 335	
cat gta cat ctg tgt acc tac ttg atg agt ttc gga gct aaa ctc gct	1056
His Val His Leu Cys Thr Tyr Leu Met Ser Phe Gly Ala Lys Leu Ala	
340 345 350	
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Ala Val Asp Asn Cys Gly Asp Asn Ala Leu His Leu Ala Leu Arg Ala	
355 360 365	
cgt agt cga cga tta aca cag gca ctt ttg tcc aat cca tca gat tct	1152
Arg Ser Arg Arg Leu Thr Gln Ala Leu Leu Ser Asn Pro Ser Asp Ser	
370 375 380	
cgg tta ctg tac cga ccc aat aag ctt ggt cag aca ccg tat tcc att	1200
Arg Leu Leu Tyr Arg Pro Asn Lys Leu Gly Gln Thr Pro Tyr Ser Ile	
385 390 395 400	
gac tta tca aat cct caa cct att ctg cca cta att ttt gga cca att	1248
Asp Leu Ser Asn Pro Gln Pro Ile Leu Pro Leu Ile Phe Gly Pro Ile	
405 410 415	
gat gcg gaa gat aaa atg gat aca gct atg gga tat gat gta tat tct	1296
Asp Ala Glu Asp Lys Met Asp Thr Ala Met Gly Tyr Asp Val Tyr Ser	
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Asn Val Leu Ala Asp Ile Val Cys Glu Pro Ser Leu Ser Leu Pro Leu	
435 440 445	
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Thr Ile Gly Leu Tyr Ala Lys Trp Gly Ser Gly Lys Ser Ala Leu Leu	
450 455 460	
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Ala Lys Leu Lys Glu Ala Met His Ser Phe Ser Arg Asp Trp Leu Asp	
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Gly Val Ser Leu Ser Val Ser Phe Ala Leu Phe Phe Ala Ile Phe Leu	
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Phe Phe Gly Met Phe Ser Leu Thr Phe Thr Met Leu Ile Ala Ile Ser	
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Asn Ser Val Thr Ala Tyr Leu Ile Ser Trp Ser Val Phe Leu Leu Ile	
515 520 525	
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Lys Asn Trp Tyr Thr Ser Met Asp Ile Ala Asn Phe Phe Ala Arg Val	
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Met Asn Ser Glu Asp Ser Ala Ser Met Pro Val Ser Phe Leu Phe Ala	
580 585 590	
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Asp Tyr His Arg Leu Ser Ser Ile Gly Gly Glu Gln Ala Leu Ala Lys	
595 600 605	
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Ile Val Ala Thr Leu Phe Glu Ala Ala Glu Thr His Phe Gly Val Leu	
610 615 620	
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Pro Val Arg Leu Phe Cys Cys Met Lys Pro Pro Tyr Pro Gly Ile His	
625 630 635 640	
gga tct tta cgt cgt cac tgc ggt gtt ccc cat gtt att ctt ctg atc	1968
Gly Ser Leu Arg Arg His Cys Gly Val Pro His Val Ile Leu Leu Ile	
645 650 655	
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Val Ala Val Phe Leu Leu Ile Met Ala Gln Val Phe Gly Thr Val Trp	
660 665 670	
cta ctt tct gat cga gat ccg aat aac ttc aat cta ttc ata gca att	2064
Leu Leu Ser Asp Arg Asp Pro Asn Asn Phe Asn Leu Phe Ile Ala Ile	
675 680 685	
gca ttc ctt tgt gga ttt gta atg att gcc atc tat cca tta gca tta	2112
Ala Phe Leu Cys Gly Phe Val Met Ile Ala Ile Tyr Pro Leu Ala Leu	
690 695 700	
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Ile Ile Met Tyr Ser Trp Thr Asn Val Pro Arg Arg Arg Val Asn Ala	
705 710 715 720	
gct gct cgg aat gct cat aaa tta cga ttt gaa ggt cta atg caa aag	2208
Ala Ala Arg Asn Ala His Lys Leu Arg Phe Glu Gly Leu Met Gln Lys	
725 730 735	
tta cag acc gag gtt gat ctt ctt gct gat atg atc cga tca ctc gat	2256
Leu Gln Thr Glu Val Asp Leu Leu Ala Asp Met Ile Arg Ser Leu Asp	
740 745 750	
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Ala Phe Thr Arg Ser His Thr Arg Leu Val Val Val Val Asp Gly Leu	
755 760 765	
gat aat tgt gag cag gaa cga atg gtt cag act ctt gat gct ctt gag	2352
Asp Asn Cys Glu Gln Glu Arg Met Val Gln Thr Leu Asp Ala Leu Glu	
770 775 780	
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Leu Leu Phe Ser Ala Arg Lys His Arg Pro Phe Ile Thr Ile Ile Ala	
785 790 795 800	
gtg gat cca cat gta ata gta tct gca atc aat cat aat atg cat tca	2448
Val Asp Pro His Val Ile Val Ser Ala Ile Asn His Asn Met His Ser	
805 810 815	
gca ctg tct ggc act gaa ctc act gga cac gac tat ctg aaa aac atc	2496
Ala Leu Ser Gly Thr Glu Leu Thr Gly His Asp Tyr Leu Lys Asn Ile	
820 825 830	
atc agt atg ccg ttc tat ctt cat aat tct gct ctt cgt cag cta caa	2544
Ile Ser Met Pro Phe Tyr Leu His Asn Ser Ala Leu Arg Gln Leu Gln	
835 840 845	
tct aaa ctt cgt gaa aaa cga gaa tcg atg gca gaa tgg aaa gaa agg	2592
Ser Lys Leu Arg Glu Lys Arg Glu Ser Met Ala Glu Trp Lys Glu Arg	
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Phe Lys Arg Gln Asp Thr Phe Tyr Gly Ser His Leu Ser Leu Arg Glu	
865 870 875 880	
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Ala Asp Gly Arg Thr Ser Arg Lys Lys Ser Thr Val Pro Asn Met Asn	
885 890 895	
tcg aat agt gtg gtt ggt cgg aat atg aat gac gga att ctt ggc gaa	2736
Ser Asn Ser Val Val Gly Arg Asn Met Asn Asp Gly Ile Leu Gly Glu	
900 905 910	
gac tac ttt tcc aat atg aat cct cgt gcc atg cgt cgt att gtc aat	2784
Asp Tyr Phe Ser Asn Met Asn Pro Arg Ala Met Arg Arg Ile Val Asn	
915 920 925	
gct tta act cta act gga cgt ctc atg aga gct ttt gaa att gac ttt	2832
Ala Leu Thr Leu Thr Gly Arg Leu Met Arg Ala Phe Glu Ile Asp Phe	
930 935 940	

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Ser Trp Met Ser Leu Gly His Trp Val Ser Leu Leu Glu Gln Trp Pro	
945 950 955 960	
tca cga atg tgt tgg ctt att gat aga gct ctt gaa gtt cac aac aat	2928
Ser Arg Met Cys Trp Leu Ile Asp Arg Ala Leu Glu Val His Asn Asn	
965 970 975	
cag ctt ctt cta tct gaa gta tac tat caa ctc aag gat cac att cca	2976
Gln Leu Leu Leu Ser Glu Val Tyr Tyr Gln Leu Lys Asp His Ile Pro	
980 985 990	
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Ala Gln Asp Asp Leu Met Gln Leu Asp Arg Asn Leu Glu Asn Phe Glu	
995 1000 1005	
ggc ttc cta gat tct aaa gga atc cca tca gca gag aga ctt act	3069
Gly Phe Leu Asp Ser Lys Gly Ile Pro Ser Ala Glu Arg Leu Thr	
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Val Gly His Val Lys Lys Phe Val Pro Cys Thr Ser Ser Leu Asp	
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cct tat ttg aga aag ttg att cgc gag aga agt aaa gga tta gtg	3159
Pro Tyr Leu Arg Lys Leu Ile Arg Glu Arg Ser Lys Gly Leu Val	
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Asp Ile Glu Ala Gln Val Gly Ser Ala Gly Met Ala Ile Pro Pro	
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Asn Ala Arg Leu Leu Phe Ser Asp Asp Leu Thr Trp Met Ser Ile	
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Asp Thr Pro Leu Val Glu Met Lys Leu Asp Ala Val Val Asn Leu	
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Ile Arg Lys Ile Asp Ile Pro Ser Asn Arg Leu Asp Ser Ile Leu	
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Cys Pro Leu Pro Glu Leu Lys Asp Ser Met Gln Leu Pro Leu Gly	
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Asp Trp Thr Leu Ile Arg Leu Leu Leu Glu Thr Leu Lys Val Phe	
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Gly Ser Ser Pro Pro Gly Leu Arg Val Asp Lys Arg Lys Ala Leu	
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Thr Leu Arg Glu Glu Asp Glu Glu Glu Glu Ile Glu Glu Ala Ala	
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Ser Val Arg Ala Glu Gln Arg Arg Arg Ser Thr Ile Val Gln Asn	
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Ala Thr Glu Leu Ser Ile Asp His Lys Cys Leu Met Glu Lys Leu	
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tcg gga atg gat ttg act gaa acc gaa ggt gat gtc aat gaa atg	3744
Ser Gly Met Asp Leu Thr Glu Thr Glu Gly Asp Val Asn Glu Met	
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His Phe Ser His Phe Ser Ser Ser Thr Asp Gly Pro Ser Pro Met	
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Ala Asp Gly Phe Leu Pro Ala Ser Val Ser Ala Ala Pro Ser Val	
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Arg Phe Asp Asp Asn Ile Asn Asp Leu Glu Arg Glu Ala Ser Asp	
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gct gac agt aca caa tcc cga tac gat tcg aaa gaa aat ctt ctt	3924
Ala Asp Ser Thr Gln Ser Arg Tyr Asp Ser Lys Glu Asn Leu Leu	
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Glu Asp Glu Arg Ser Ala Ser Pro Pro Ala His Val Asp Leu Met	
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Arg Phe Asp Ser Gly Asn Thr Ser Ser Asp Phe Val Arg Ser Ser	
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Tyr Arg Thr Ser Ser Arg Tyr Arg Arg Met Ser Arg Gly Asp Leu	
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Met Arg Gly Met His Gln Asn Asp Thr Ile Arg Ser Lys Ile Asn	
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Phe Gln Asn Gln Gln Thr Val Gln Arg Arg Gly Gly Asp Asp Phe	
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Ala Leu Thr Ala Glu Ile Ser Ala Leu Arg Asn Ala Asn Gly Glu Ser
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Trp Ser Ala Leu Leu Asn Ala Ala His Cys Gly His Val Asp Ile Val
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Arg Leu Leu Ile Asp Asn Gly Ala Ser Val Asp Gln Pro Asp Leu Met
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Gly Trp Ser Pro Leu Met Trp Ala Val Tyr Lys Asn His Leu Asp Val
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Val Asp Leu Leu Val Asn Ala Lys Val Asn Ala Cys Asp Lys Phe Gly
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Ser Thr Ala Leu Ile Trp Ala Ala Arg Lys Gly His Leu Pro Val Val
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Ser Ser Thr Ala Leu Met Leu Ala Thr Arg Gly Asn Phe Ile Gln Val
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Asn Gly Leu Thr Ala Leu Gly Met Ala Ala Arg Asp Gly Tyr Ala Asp
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Ile Cys Glu Ser Leu Ile Asn Ser Gly Ala Phe Val Asn Gln Cys Asp
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Arg Phe Gly Asn Trp Ile Leu Thr Ser Ala Val Arg Ser Gly Asn Ala
260 265 270

Ala Ile Val Arg Met Ile Leu Asp Lys Phe Ala Asp Ile Asn Cys Gln
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Asp Ser Glu Lys Arg Thr Pro Leu His Leu Ala Ile Asp Lys Ser Phe
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Asn Asp Ile Ala Tyr Ile Leu Leu Glu Lys Lys Pro Asn Leu Glu Leu
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Lys Asn Lys Asp Gly Glu Thr Pro Leu Leu Arg Ala Ala Lys Cys Arg
325 330 335

His Val His Leu Cys Thr Tyr Leu Met Ser Phe Gly Ala Lys Leu Ala
340 345 350

Ala Val Asp Asn Cys Gly Asp Asn Ala Leu His Leu Ala Leu Arg Ala
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Arg Ser Arg Arg Leu Thr Gln Ala Leu Leu Ser Asn Pro Ser Asp Ser
370 375 380

Arg Leu Leu Tyr Arg Pro Asn Lys Leu Gly Gln Thr Pro Tyr Ser Ile
385 390 395 400

Asp Leu Ser Asn Pro Gln Pro Ile Leu Pro Leu Ile Phe Gly Pro Ile

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Asn Val Leu Ala Asp Ile Val Cys Glu Pro Ser Leu Ser Leu Pro Leu 435 440 445		
Thr Ile Gly Leu Tyr Ala Lys Trp Gly Ser Gly Lys Ser Ala Leu Leu 450 455 460		
Ala Lys Leu Lys Glu Ala Met His Ser Phe Ser Arg Asp Trp Leu Asp 465 470 475 480		
Gly Val Ser Leu Ser Val Ser Phe Ala Leu Phe Phe Ala Ile Phe Leu 485 490 495		
Phe Phe Gly Met Phe Ser Leu Thr Phe Thr Met Leu Ile Ala Ile Ser 500 505 510		
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Asp Tyr His Arg Leu Ser Ser Ile Gly Gly Glu Gln Ala Leu Ala Lys 595 600 605		
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Ile Ile Met Tyr Ser Trp Thr Asn Val Pro Arg Arg Arg Val Asn Ala
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785 790 795 800

Val Asp Pro His Val Ile Val Ser Ala Ile Asn His Asn Met His Ser
805 810 815

Ala Leu Ser Gly Thr Glu Leu Thr Gly His Asp Tyr Leu Lys Asn Ile
820 825 830

Ile Ser Met Pro Phe Tyr Leu His Asn Ser Ala Leu Arg Gln Leu Gln
835 840 845

Ser Lys Leu Arg Glu Lys Arg Glu Ser Met Ala Glu Trp Lys Glu Arg
850 855 860

Phe Lys Arg Gln Asp Thr Phe Tyr Gly Ser His Leu Ser Leu Arg Glu

Ile Arg	Lys Ile Asp Ile Pro	Ser Asn Arg Leu Asp	Ser Ile Leu
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Asp Arg	Phe Tyr Gln Leu Asn	Leu Cys Gly Leu Val	Leu Ala Thr
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Cys Pro	Leu Pro Glu Leu Lys	Asp Ser Met Gln Leu	Pro Leu Gly
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Asp Trp	Thr Leu Ile Arg Leu	Leu Leu Glu Thr Leu	Lys Val Phe
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Gly Ser	Ser Pro Pro Gly Leu	Arg Val Asp Lys Arg	Lys Ala Leu
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Thr Leu	Arg Glu Glu Asp Glu	Glu Glu Glu Ile Glu	Glu Ala Ala
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Glu Ala	Ala Leu Asn Ser Glu	Lys Glu Arg Ala Pro	Leu Leu Gly
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Ser Val	Arg Ala Glu Gln Arg	Arg Arg Ser Thr Ile	Val Gln Asn
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Ala Thr	Glu Leu Ser Ile Asp	His Lys Cys Leu Met	Glu Lys Leu
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Ser Gly	Met Asp Leu Thr Glu	Thr Glu Gly Asp Val	Asn Glu Met
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His Phe	Ser His Phe Ser Ser	Ser Thr Asp Gly Pro	Ser Pro Met
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Ala Asp	Gly Phe Leu Pro Ala	Ser Val Ser Ala Ala	Pro Ser Val
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Arg Phe	Asp Asp Asn Ile Asn	Asp Leu Glu Arg Glu	Ala Ser Asp
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Ala Asp	Ser Thr Gln Ser Arg	Tyr Asp Ser Lys Glu	Asn Leu Leu
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Glu Asp	Glu Arg Ser Ala Ser	Pro Pro Ala His Val	Asp Leu Met

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Phe Gln Asn Gln Gln Thr Val Gln Arg Arg Gly Gly Asp Asp Phe
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Asn Arg Phe Gly Asp Ser Met Gly Ser Leu Gly His Arg Ala Leu Leu	
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Gln Tyr Ile Asp Asn Asn Asp Ile Ser Gly Leu Arg Ala Ile Leu Asp	
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Ser Arg His Leu Thr Ile Asp Asp Arg Asp Glu Asn Ala Thr Thr Val	
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Leu Met Val Val Ala Gly Arg Gly Leu Thr Ala Phe Val Arg Glu Phe	
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Leu Ala Arg Gly Ala Asp Val Gln Ala Glu Asp Leu Asp Asn Trp Thr	
85 90 95	

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Ala Leu Leu Cys Ala Ser Arg Asn Gly His Leu Asp Val Val Gln Leu	
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Leu Leu Asp His Gly Ala Glu Val Glu His Arg Asp Met Gly Gly Trp	
115 120 125	
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Thr Ser Leu Met Trp Ala Ala Tyr Arg Gly His Thr Glu Leu Val Arg	
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Gly Thr Thr Ala Leu Val Trp Ala Cys Arg Arg Gly Asn Val Glu Ile	
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Cys Val Ser Ser Ile Leu Glu Lys Lys Pro Asn Val Asn Ala Leu Asp	
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Lys Asp Gly Met Thr Ala Leu Cys Ile Ala Ser Arg Glu Gly Phe Gln	
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Asp Ile Ala Ala Ser Leu Ile Ala Ala Gly Ala Tyr Ile Asn Ile Gln	
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His	Thr	Pro	Ile	Val	Lys	Leu	Leu	Leu	Ala	Thr	Asn	Pro	Asp	Leu	Glu		
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Ser	Ala	Thr	Lys	Asp	Gly	Asp	Thr	Pro	Leu	Leu	Arg	Ala	Val	Arg	Asn		
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cgc	aac	ttg	gag	att	gtg	cac	tta	ttg	cta	gat	cga	aag	gcc	aag	gtg		1152
Arg	Asn	Leu	Glu	Ile	Val	His	Leu	Leu	Leu	Asp	Arg	Lys	Ala	Lys	Val		
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Thr	Ala	Ser	Asp	Lys	Arg	Gly	Asp	Thr	Cys	Leu	His	Ile	Ala	Met	Arg		
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gcg	agg	agc	aag	acg	att	gtg	gag	gcc	ctt	ctg	cga	aat	ccc	aag	cac		1248
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Ser	Gln	Leu	Leu	Tyr	Arg	Ala	Asn	Lys	Ala	Gly	Glu	Thr	Pro	Tyr	Asn		
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Ile	Asp	Ser	Leu	His	Gln	Lys	Thr	Ile	Leu	Gly	Gln	Val	Phe	Gly	Ala		
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Phe	Leu	Leu	Asn	Lys	Leu	Arg	Asp	Glu	Met	Asn	Asn	Phe	Ala	Arg	Gln		
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Trp	Ala	Glu	Pro	Pro	Ile	Arg	Thr	Ser	Gly	Leu	Leu	Phe	Ile	Val	Cys		
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Leu	His	Val	Ala	Leu	Leu	Ile	Gly	Thr	Ile	Val	Gly	Leu	Ser	Thr	Trp		
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Ser	Ala	Val	Val	Gly	Val	Ser	Ala	Ala	Val	Gly	Phe	Leu	Leu	Leu	Ala		
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Ser Asp Ser Gln Ala Lys Pro Val Arg Phe His Phe Ala Glu Ala Asn	
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Ser Ala Ser Pro Thr Gly Asp Gly Ala Val Ala His Met Leu Ala Ala	
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Leu Leu Asp Ala Ile Glu Ser His Tyr Gly Trp Leu Ala Thr Arg Leu	
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Tyr Arg Ala Phe Arg Pro Lys Cys Leu Lys Val Asp Val Gly Trp Arg	
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755 760 765	
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Glu Val Ala Val Met Thr Asp Met Val Lys Cys Leu Asp Ala Phe Thr	
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Pro Arg Ser Met Arg Arg Leu Met Asn Val Ile Tyr Ile Thr Val Arg	
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Trp Ile Asn Leu Thr Glu Gln Trp Pro Leu Arg Ala Ser Met Ile	
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Cys	Glu	Arg	Leu	Pro	Arg	Lys	Gln	Gln	Arg	Gln	Gln	Gln	Gln	Pro	
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His	Leu	Gly	Asn	Gly	Asn	Asp	Leu	Ser	Asp	Ser	Thr	Leu	Asp	Leu	
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Gln Tyr Ile Asp Asn Asn Asp Ile Ser Gly Leu Arg Ala Ile Leu Asp
 35 40 45

Ser Arg His Leu Thr Ile Asp Asp Arg Asp Glu Asn Ala Thr Thr Val
 50 55 60

Leu Met Val Val Ala Gly Arg Gly Leu Thr Ala Phe Val Arg Glu Phe
 65 70 75 80

Leu Ala Arg Gly Ala Asp Val Gln Ala Glu Asp Leu Asp Asn Trp Thr
 85 90 95

Ala Leu Leu Cys Ala Ser Arg Asn Gly His Leu Asp Val Val Gln Leu
 100 105 110

Leu Leu Asp His Gly Ala Glu Val Glu His Arg Asp Met Gly Gly Trp
 115 120 125

Thr Ser Leu Met Trp Ala Ala Tyr Arg Gly His Thr Glu Leu Val Arg
 130 135 140

Leu Leu Leu Asp Lys Gly Ala Asp Gly Asn Ala His Gly Asn Tyr His

145 150 155 160
 Leu Gly Ala Leu Leu Trp Ala Ala Gly Arg Gly Tyr Lys Asp Ile Val
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 Glu Leu Leu Val Gln Arg Gly Ala Lys Val Asn Val Gly Asp Lys Tyr
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 Gly Thr Thr Ala Leu Val Trp Ala Cys Arg Arg Gly Asn Val Glu Ile
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 Val Asp Thr Leu Leu Lys Ala Gly Ala Asn Val Asp Thr Ala Gly Met
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 Tyr Ser Trp Thr Pro Leu Leu Val Ala Ala Ala Gly Gly His Thr Asp
 225 230 235 240
 Cys Val Ser Ser Ile Leu Glu Lys Lys Pro Asn Val Asn Ala Leu Asp
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 Lys Asp Gly Met Thr Ala Leu Cys Ile Ala Ser Arg Glu Gly Phe Gln
 260 265 270
 Asp Ile Ala Ala Ser Leu Ile Ala Ala Gly Ala Tyr Ile Asn Ile Gln
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 Asp Arg Gly Ala Asp Thr Pro Leu Ile His Ala Val Lys Ala Gly His
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 Arg Thr Val Val Glu Ala Leu Leu Lys Lys His Ala Asp Val Asp Ile
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 Gln Gly Lys Asp Arg Lys Thr Ala Ile Tyr Thr Ala Val Glu Lys Gly
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 His Thr Pro Ile Val Lys Leu Leu Leu Ala Thr Asn Pro Asp Leu Glu
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 Ser Ala Thr Lys Asp Gly Asp Thr Pro Leu Leu Arg Ala Val Arg Asn
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Thr Ala Ser Asp Lys Arg Gly Asp Thr Cys Leu His Ile Ala Met Arg
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Ser Gln Leu Leu Tyr Arg Ala Asn Lys Ala Gly Glu Thr Pro Tyr Asn
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Ile Asp Ser Leu His Gln Lys Thr Ile Leu Gly Gln Val Phe Gly Ala
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Arg Arg Leu Asn Thr Asn Glu Asp Ser Glu Gly Met Leu Gly Tyr Glu
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Leu Tyr Ser Ser Ala Leu Ala Asp Val Leu Ser Glu Pro Thr Leu Thr
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Thr Pro Ile Thr Val Gly Leu Tyr Ala Lys Trp Gly Ser Gly Lys Ser
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Phe Leu Leu Asn Lys Leu Arg Asp Glu Met Asn Asn Phe Ala Arg Gln
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Trp Ala Glu Pro Pro Ile Arg Thr Ser Gly Leu Leu Phe Ile Val Cys
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Leu His Val Ala Leu Leu Ile Gly Thr Ile Val Gly Leu Ser Thr Trp
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Ser Ala Val Val Gly Val Ser Ala Ala Val Gly Phe Leu Leu Leu Ala
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Tyr Leu Leu Leu Ala Ala Val Arg Tyr Cys Asn Tyr Gln Met Asp Met
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Gln Trp Ala Tyr Ser Val Gln His Gly Leu Glu Lys Arg Met Thr Arg
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Ser Asp Ser Gln Ala Lys Pro Val Arg Phe His Phe Ala Glu Ala Asn

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Leu Leu Asp Ala Ile Glu Ser His Tyr Gly Trp Leu Ala Thr Arg Leu		
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Tyr Arg Ala Phe Arg Pro Lys Cys Leu Lys Val Asp Val Gly Trp Arg		
	660	665 670
Trp Arg Arg Met Cys Cys Ile Pro Ile Val Leu Ile Phe Glu Leu Ala		
	675	680 685
Leu Val Thr Val Val Thr Gly Ile Ser Leu Thr Val Ala Tyr Phe Thr		
	690	695 700
Phe Ala Asp Glu Lys Glu Lys Glu His Ile Leu Val Ala Leu Tyr Val		
705	710	715 720
Ile Ala Ala Val Met Gly Thr Leu Ile Cys Thr His Leu His Val Leu		
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Ala Lys Val Phe Val Ser Leu Phe Thr Ser His Ile Arg Val Leu Lys		
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Arg Ala Val Arg Ser Ser Glu Ser Ala Pro Leu Thr Met Leu Gly Ala		
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Asn Gln Gln Ser Arg Leu Val Gly Val Ile Asp Ala Leu Asp Ser Cys		
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Ser Ser Pro Asn Arg Pro Phe Val Leu Leu Ile Ser Val Asp Pro His		
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Val Ile Ala Lys Ala Ala Glu Ala Asn Ser Arg Arg Leu Phe Thr Glu		
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Gly Gly Ile Gly Gly His Asp Phe Leu Arg Asn Leu Val His Leu Pro
850 855 860

Val Tyr Leu Gln Asn Ser Gly Leu Arg Lys Val Gln Arg Ala Gln Met
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Thr Ala Leu Leu Phe Lys Arg Ser Gly Gly Gly Asp Tyr Gln Thr Asp
885 890 895

Asp Gly Pro Thr Leu Gly His Ser Val Ser Ala Arg Arg Leu Ser Asn
900 905 910

Ala Ser Glu Ile Ile Ser Ser Gln Glu Lys Leu Arg Gly Pro Ala Arg
915 920 925

Gly Gly Gly Gly Lys Lys Leu Arg Leu Ser Glu Ser Val Ala Ser Ser
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Thr Gly Ser Asn Leu His Arg Leu Gly Gln Asn Pro Gln Thr Val Leu
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Asp Leu Ser Arg Ile Val Leu Thr Asp Asp Tyr Phe Ser Asp Val Asn
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Pro Arg Ser Met Arg Arg Leu Met Asn Val Ile Tyr Ile Thr Val Arg
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Leu Leu Lys Ala Phe Gln Ile Glu Phe Ser Trp Tyr Arg Leu Ser Ser
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Trp Ile Asn Leu Thr Glu Gln Trp Pro Leu Arg Ala Ser Met Ile
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Val Leu His His Asp Gln Phe Met Asp Ser Asn Ala Asp Glu Ser
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Val Ser Leu Gln Ser Val Tyr Glu Lys Leu Arg Pro Lys Leu Ala
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Arg Lys Leu Asp Ala Phe Leu Gln Leu His Lys Ser Asp Leu Leu

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Val Ala Asp Leu Arg Ile Phe Leu Pro Phe Thr Ile Asn Leu Asp				
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Pro Tyr Leu Arg Lys Val Leu Lys Glu Asp Gln Gln Thr Ile Glu				
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Gln Ala Tyr Pro Pro Tyr Gln Met Phe Gln Asn Glu Tyr Pro Ala				
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Gly His Trp Glu Leu Phe Arg Leu Leu Ile Thr Thr Leu Arg Glu				
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Cys Glu Arg Leu Pro Arg Lys Gln Gln Arg Gln Gln Gln Gln Pro				
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